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09/932,334	08/17/2001	Iain Robertson	TI-26018	4190

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EXAMINER

MARTINEZ, DAVID E

ART UNIT	PAPER NUMBER
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2182

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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## Office Action Summary

**Application No.**

09/932,334

**Applicant(s)**

ROBERTSON, IAIN

**Examiner**

David E Martinez

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-11 is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 3 and 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,401,149 to Dennin et al. (Dennin) in view of US Patent No. 5,450,546 to Krakirian.
2. With regards to claim 1, Dennin teaches a data transfer apparatus transferring data from a data source to a data destination comprising:

a first-in-first-out buffer memory [fig 4, element 302, column 7 lines 35-41] having an input connected to the data source, an output connected to said data destination [figs 3,4 column 6 line 46 to column 7, line 12] and a predetermined number of data entries [fig 4, element 402, column 7, lines 35-41];

a remote queue counter [fig 4, element 414] storing a remote count indicative of a number of data entries within said first-in-first-out buffer memory currently storing data [column 8, lines 57-61], said remote queue counter connected to said data source for incrementing said remote count upon allocation of data at said data source to be stored in said first-in-first-out buffer memory [fig 4, element 130 bus to data source], connected to said data destination for decrementing said remote count [fig 4, element 414, is part of the FIFO memory element 302, that is connected to the data destination, figs 3,4 column 6 line 46 to column 7, line 12] and generating a decrement confirmation signal upon transfer of data out of said first-in-first-out buffer memory to said data destination; and

Dennin teaches all of the above limitations except for a master queue counter storing a master count indicative of a number of data entries available for data storage within said first-in-first-out buffer memory, said master queue counter connected to the data source to decrement said master count upon allocation of data at said data source to be stored in said first-in-first-out buffer memory; wherein said master queue counter is further connected to said remote queue counter for incrementing said master count upon receipt of said decrement confirmation signal.

However, Krakirian teaches a master queue counter storing a master count indicative of a number of data entries available for data storage within a first-in-first-out buffer memory, said master queue counter connected to the data source to decrement said master count upon allocation of data at said data source to be stored in said first-in-first-out buffer memory; wherein a master queue counter is further connected to a remote queue counter for incrementing a master count upon receipt of a decrement confirmation signal ['second counter' column 4 lines 19-36 and line 62 to column 5 line 16, 'block counter' column 7 lines 30-61 and column 8 lines 29-39]. Krakirian discloses by using counters to monitor how full and empty a fifo buffer memory is, benefit a system by minimizing processor involment thus improving performance.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of both Dennin and Krakirian to provide a master queue counter storing a master count indicative of a number of data entries available for data storage within said first-in-first-out buffer memory, said master queue counter connected to the data source to decrement said master count upon allocation of data at said data source to be stored in said first-in-first-out buffer memory; wherein said master queue counter is further connected to said remote queue counter for incrementing said master count upon receipt of said decrement

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confirmation signal in order to use counters to monitor how full and empty a fifo buffer memory is to benefit a system by minimizing processor involvement thus improving performance.

3. With regards to claims 2, Dennin teaches the data transfer apparatus of claim 1, wherein:

said remote queue counter is initialized at zero [column 16 lines 1-4 initialized to a default value, column 10 lines 6-8].

Dennis teaches the above limitation except for said master queue counter is initialized to said predetermined number of data entries of said first-in-first out buffer memory;

However, Krakirian teaches a master queue counter used to keep track of how empty a fifo buffer memory is, and is initialized to a predetermined number of data entries of [column 4 lines 19-36, column 7 lines 30-61] for being able to keep track of the number of empty data entries in the fifo buffer memory. Krakirian teaches the initialization of the master queue counter being arbitrarily chosen as the maximum or the minimum value of the fifo buffer memory. He discloses the example of initializing the master queue counter at the maximum number then decrementing it as the fifo buffer memory gets filled.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of both Dennin and Krakirian to have master queue counter initialized to the predetermined number of data entries of the first-in-first out buffer memory to keep be able to have the number of empty data entries for the same reasons as set forth above in claim 1.

***Allowable Subject Matter***

4. Claim 5-11 are allowed over the prior art.

5. Claims 3-4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter for claims 8-11:

With regards to claims 8-11, the prior art alone or in combination do not teach the various pipelining stages when events occur for the claimed invention.

### ***Response to Arguments***

Applicant's arguments filed 7/27/04 have been fully considered but they are not persuasive.

With regards to claim 1, applicant argues:

"the second counter/block counter 256 of Krakirian is not different than the FIFO utilization counter 414 of Dennin et al." , thus basically applicant is saying that the combination of Dennin et al. and Krakirian only disclose two of the same "remote queue counters" whereas the invention calls for a "remote queue counter" that keeps track of counts currently stored in a FIFO and a "master queue counter" that keeps track of counts currently available within said FIFO.

Examiner respectfully disagrees. Not only is it stated in the cited text (Krakirian column 4 lines 19-36) that fig 2-counter 256 acts as the claimed master queue counter, it is also acknowledged by the applicant's admission on page 8 lines 19-26:

"When initialized to the maximum value, this second counter corresponds to the master queue counter of claim 1 and the master queue count of claim 5 storing a count indicative of the number of data entries available for storage. In this case, the second counter is decremented when 'each subsequent selected number of data segments are transferred to the buffer

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memory.' This corresponds to decrementing the master count as recited in claims 1 and 5. When initialized to the minimum value, this second counter corresponds to the remote queue counter of claim 1 and the remote count of claim 5 storing an indication of the number of FIFO entries storing data."

Although the Krakirian's counter has the advantage of both being able to be used as either a master queue counter or a remote queue counter, Krakirian uses the second counter as a master queue counter. Thus, Krakirian's master queue counter and Dennin's remote queue counter (fig 4 element 414) combined cover the two different claimed counters for keeping track of how full and how empty a fifo currently is. Furthermore, Krakirian's "first counter" is also a remote queue counter by keeping track of how many elements are in a fifo, and in combination with the "second counter" cover the two different counters being claimed as well (column 4 lines 19-42). After admitting that Krakirian does in fact perform the claimed function of a master queue counter, applicant ignores his own admission and argues that Krakirian does not disclose the claimed master queue counter for the remaining remarks. The examiner finds applicant's admission makes the remainder of arguments directed to Krakirian disclosing a remote queue counter instead of the admitted master queue counter moot since clearly, Krakirian's second counter is a master queue counter as well.

As per the remarks from page 9 line 3 to page 10 line 13 applicant argues the use of a third counter (referring to Krakirians third counter). However, the examiner never directed any part of the office action to Krakirian's third counter.

With regards to claim 2, applicant argues that since Dennin and Krakirian each disclose only one counter storing only one count, it would not be obvious to perform the two initializations recited in claim 2. However, because Krakirian and Dennin do disclose two different counters (master and remote queue counters respectively) as shown above for claim 1, it would have

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been obvious to perform the initializations for both counters as cited in the claim 2 rejection above.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E Martinez whose telephone number is (703) 305-4890. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A Gaffin can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Starting October, the examiner can be reached at the new telephone number (571) 272-4152 and new fax number (571) 273-4152.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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